

# Primary forests are irreplaceable for sustaining tropical biodiversity

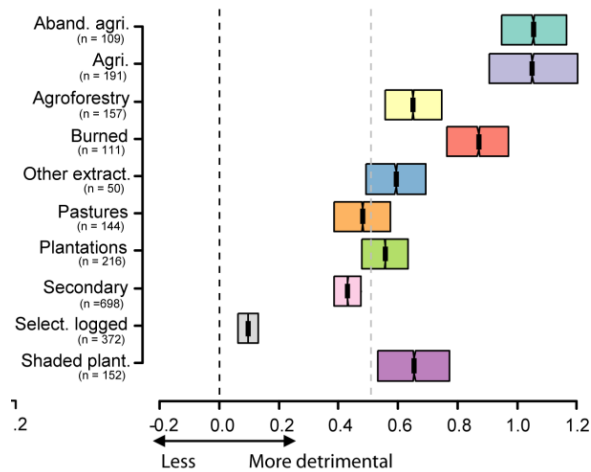
Luke Gibson, Tien Ming Lee, Lian Pin Koh, Barry W. Brook, Toby A. Gardner, Jos Barlow, Carlos A. Peres, Corey J.A. Bradshaw, William F. Laurance, Thomas E. Lovejoy, Navjot S. Sodhi – *Nature* 478:378-381

Tropical forests are under serious threat. These important habitats, sustaining the majority of all species found on earth, are being rapidly degraded by logging or cleared to make room for cattle pastures, palm oil plantations, and other agricultural lands. It is critical to understand the impact of these various forms of disturbance on tropical species and their habitats in order to mitigate those activities that are most damaging and to identify those degraded habitats that offer the greatest potential for restoration.

We conducted a meta-analysis to evaluate the impact of a suite of human disturbances on biodiversity in tropical forests, worldwide. Not surprisingly, we found that biodiversity was significantly lower in all types of disturbed forest habitats. Undisturbed tropical forests are truly unique bastions of biodiversity and our paper shows that they must be preserved at all costs to provide refuge to the millions of species that call these forests home.

However, not all forms of disturbance had the same impact. One of the most important findings of our paper was that selectively logged forests sustained relatively high levels of biodiversity. This suggests that logged forests may be ideal locations for forest restoration projects.

There are limited funds available for conservation efforts, and we must choose carefully where to focus these efforts. Two clear priorities emerge from our paper: (1) the preservation of intact primary tropical forests and (2) the restoration of moderately disturbed selectively logged forests.



Box plots of bootstrapped effect size, showing the impact of various forms of human disturbance on biodiversity. Plotted are median values and interquartile ranges of 10,000 resampled (with replacement) effect size calculations for each group. Widths of notches in box plots approximate 95% confidence intervals. The vertical black and grey dashed lines represent an effect size of zero and the median effect size for the entire data set, respectively. Sample size is shown in parentheses.



A ranger patrols part of an undisturbed forest in Khlong Saeng Wildlife Sanctuary, Thailand (photo: Luke Gibson)